

ATGAGAGTGAAGGGGATCAGGAGGAATTATCAGCACTTGTGGAGATGGGGACCACCATGCTCCTGGGATGTTGATGATCTG  
TAGTGCTGCAGATCAATTGGGTACAGTCTATTATGGGTGCTGTGTGGAAAGAAAGCAACCCACCTCTATTTTGTG  
CATCAGATGCTAAAGCATATAGTACAGAGGTACATAATATTGGGCACACATGCTGTGTACCCACAGACCCAGCCCA  
CAAGAAATAGTAAATGGAATGTGACAGAAAGTCAACATGTGGAATAAATACATGGTAGAACAGATGCATGAGGATAT  
AATCAGTTTATGGGATGAAGCCCTAAAGCCATGTGTAAATTAATCCACTCTGTGTTACTCTAAATGCACTACTGAGT  
TGAATCTTCTAAATGCAATTGATAATAGTACTAATGATAAATGTATACCGCCAGATCAAAAAGGAGAAATGAAAACCTGC  
TCCTTCAATATCACCGCAGGCATAAGAAATAAGGTGCGGAAGAATATGCACCTTTTATACAAGTGTAGTACCAAT  
AGATAATGATACATTAGATTAGATTGATAAGTTGTAACACCTCAATATACACAGGCTGTCCAAAGGTATCCTTTG  
AGCCAAATCCCATACACTATTGCCCCGGCTGTTTGGCACTTAAAGTGTAAAGTAGGAATTTCAATGGAACAGGA  
CTATGTAAAAATGTCAGCACAGTACAATGTACACATGGAATAGGCCAGTAGTCAACTCAACTGCTGTTAAATGGCAG  
TCTGGCAGAAAAGAGATAGTAATTAGATCTGAAAATTTACGGACAATGCTAAACCAATAGTACAGCTGCCTGAAA  
TAGTACACTTAATTGTACAAGCTTAACAATAATATAAGAAAAGTCTACGTATAGGACCAGGGAGAGCATGGTGGTAT  
GCAACAAGAGGAATAATAGGAAAATGAGACAAACACATGCAACATTAGTAGAGTAAATGGAATAACACTTTAGAAC  
GATAGTTAAAAAATTAGGAGACAAATTTGGGACTAATAATAAACAATAATTTAATCAATCCTCAGGAGGGGACC  
CAGAAATTACATGCACACTTTTAAATGTGGAGGGAAATTTTACTGTAATACAACCAACTGTTTAAATAGTACTTGG  
ATTCGGAATGGTACTGATTGGACTCGAAATGATAGTGAAGGATCAGACATCACTAACGAAAATATCACGCTCCCATGTAG  
AATAAAACAAATTATAACATGTGCAGAAAGTAGGGAAGCAATGTATGCCCTCCCATCAGTGGACAAATTAGCTGTT  
CCTCAATATTACAGGGCTGCTATTAAACACAGATGGTGTGTTGCTGTACACGGACGCGAACACGTCACCTTCAG  
CCGGAGGAGGAAATATGAGGGACAATTGGAGAGTGAATATAATAATAAGTAAATAAGTTGAACCAATAGGAAT  
AGCACCACCAAGGCAAGAGAGAGTGTGACAGAGAAAAGAGCAGTGGGAATAGCAGCTATGTTCTTGGGTTCT  
TGGAACAGCAGGAAGCGCTATGGCGCAGCGTCAGTGACGCTGACGTACAGCCAGCAACATTAATTGCTGGTATAGTG  
CAACAGCAGAACAAATCTGCTGAGGGCTATTGAGCGCAACAGCATATGTTGCAACTCACAGTCTGSGGCATCAAGCAGCT  
CCAGGCAAGAGTCTTGGCTGTGGAAGATACCTAAGGGATCAACAGCTCCTGGGAATTTGGGGTTGCTCTGGAACCTCA  
TTTGCACCACTGCTGCTGGCTTGGAAATAGTGTGGAGTAATAGATCTCTGGGAGACATTTGGGAAATGATAACATGACC  
TGGATGAAGTGGGAAAGAGAAATTGATAATTACACAAGCTATATACACCTTAATTGAAGAAATCGCAGAACCAAGA  
AAAGAATGAAGTGAATTTGGAATTAGACAAATGGGACAGTTTGGAGTTGGTTAGCATAACAAACTGGCTGTGGT  
ATATAAAATATTCATAATAGTAGGAGGCTTGATAGGTTTAAAGATAGTTTTAGTGTCTTTCTATAGTGAATAGA  
GTTAGGCAGGGATCTCACCATTGCTGTTTCAGACCCGCCCCCAGCCCCGAGGGGACCCGACAGCCCCGAAGGAATCGA  
AGAAGAAGGTGGAGAGAGACAGACAGATCCGGCAGATTAGTGGATGGATTCTTAGCACTTATCTGGTTCGACCTGC  
GGAGCCTGTGCTTTCAGCTACCAACCGCTTGAGAGACTTACTTTGATTGCAGCAGGATTGTGGAACCTCTGGACGC  
AGGGGTGGGAAGTCCCTCAAGTATTGTTGGAATCTCTACAGTACTGGAGTCAGGAATAAAGAAATAGTGTAGCTT  
GCTTAATACCATAGCAATAGCAGTAGCTAGGGGACAGATAGGGTTATAGAAATAATACAAAGAGCTTGTAGAGCTATT  
TCCACATACCTAGAGAATAAGACAGGGCTTTGAAAGGGCTTTGCTATAA

FIG. 1

ATGAGAGTGAAGGGGATCAGGAAGAATTATCAGCACTTGTGGAGATGGGCACCATACTCCTTGGATGTTGATGATCTG  
TAGTCTGCAGATCAATTGTTGGGTACAGTCTATTATGGGTGCTGTGTGAAAGAAGCAACACCACCTCTATTTTGTG  
CATCAGATGCTAAAGCATATAGTACAGAGGTACATAATATTTGGGCCACACATGCCTGTGTACCCACAGACCCAGCCCA  
CAAGAAATAGTAATGGAATGTGACAGAAGATTCAACATGTGGAATAATACATGGTGAACAGATGCATGAGGATAT  
AATCAGTTTATGGGATGAAGCCTAAAGCCATGTGTAATAATTAACCTCCTGTGTTACTCTAAATGCACTACTGAGT  
TGAATCTTCTAAATGCATTGATAATAGTACTAGTGTATTAACACTGATAATAGCACTAGTAGTAATAGTACTGATGAT  
AAATGTATACCGCCAGATCAAAAAGGAAAAATGAAAACTGCTCTTCAATATCACCGCAGGCATAAGAGATAAGGTGCG  
GAAAGAAATGCACCTTTTATACAGTGTATGACCAATAGATAATGATGCTATCAGTTATAGATTGATAAGTTGTA  
ACACCTCAATCATTACACAGGCTGTCCAAAGGTATCCTTGGCCAAITCCCATACACTATTGCCCCGCTGGTTTT  
GCGATCTAAAGTGTAAAGTAGGAATTCATGGAACAGGACTGTGAAATGTACACAGTACAAATGTACACATGG  
AATTAGGCCAGTAGTCAACTCACTGCTTAAATGGCAGTCTGGCAAAAAAGAGATAGTAATTAGATCTGAAAAT  
TCACGGCAATGCTAAACCATATAGTACAGCTGCTGAAATAGTACACATTAAITGTACAGACCTAACATAATATA  
AGAAAGGTCTACGTATAGGACCGGAGAGCATGGTGTATGCAACAGAGGAATAATAGGAAAAATGAGACAAACACA  
TTGCAACATTAGTAGAAAAATGGAATAACACTTAGAACAGATAGTTAAAAATTAGGAGACAAATTTGGGACTAATA  
ATAATAAACAAATAATTTAATCAATCCTCAGAGGGGCCAGAAATTACAATGCACACTTTTAATTGTGGAGGGAA  
TTTTTTACTGTAATACACACAATGTTTAAATAGTACTTGGATTGGAAATGGTACTGATTGGACTCAAAATGATACTGA  
AGGATCAGACATCACTAACGAAATATCACGCTCCCATGTAGATTAACAAATATAAACATGTGGCAGGAAGTAGGGA  
AAGCAATGTATGCCCTCCCATCAGTGGACAAATTAGCTTTCATCAATATTACAGGGCTGCTATTAAACACACGATGGT  
GTTGTTGGTCTGTACAGGACGCGAACACGTCACCTTCAGACCGGGAGGAAATATGAGGACAAATGGAGAAGTGA  
ATTATATAATATAAGTATAAAGTTGAACCAATAGGAATAGCAACCCACCAAGCAAGAAGAGTGGTGCAGAGAG  
AAAAAGAGCAGTGGGAATAGGAGCTATGTCCTTGGGTTCTTGGAAACAGCAGGAAGCGCTATGGCGCAGCGTCAGTG  
ACGCTGACGGTACAGCCAGACAATTATGCTGTGTATGTGCAACAGCAGACAATCTGCTGAGGGCTATTGAGCGCA  
ACAGCATATGTTGCAACTCACAGTCTGGGCGCATCAAGCAGCTCCAGCAAGAGTCTTGGCTGTGGAAGATACCTAAGG  
ATCAACAGCTCCTGGGAATTTGGGTTGCTCTGGAACACTATTGCACCAGTCTGCTTGGCTTGGAAATAGTAGTTGGAGT  
AATAGATCTCTGGGAGACATTTGGGAAATGATAACATGACCTGGATGAAGTGGGAAAGAGAAATGATAATTACACAAG  
CTATATACACCTTAATTGAAGAATCGCAGAACCCAGCAAGAAAGAAATGAAC TAGAATTATTGGAATTAGACAAATGGG  
ACAGTTTGTGGAGTTGTTAGCATAACAACTGGCTGTGGTATATAAAATATTCAATATAGTAGTAGGAGGCTTGATA  
GGTTAAAAATAGTTTTTAGTGTCTTTCTATAGTGAATAGATTAGCAGGGTACTCACCATTGCTGTTTCAGACCCG  
GCCCCAGCCCCGAGGGGACCCGACAGGCCCGAAGGAATCGAAGAAGAGGTGGAGAGAGACAGACAGATCCGGCA  
GATTAGTGGATGGATTTCTAGCACCTTATCTGGGTGACCTGCGGAGCCTGTGCTTTCAGCTACCCGCTTGAGAGAC  
TTACTCTTGATTGCAGCGAGGATTGTGGAACCTCTGGGAGCGAGGGGTGGAAAGTCTCAAGTATTGTTGGAAATCTCCT  
ACAGTACTGGAGTCAGGAACATAAGAAATAGTGTCTGTTAGCTTGTCTTAATACCATAGCAATAGCAGTAGCTGAGGGGACAG  
ATAGGGTTATAGAAATAATACAAAGAGCTTGTAGAGCTATTCTCCACATACCTAGAGAATAAGACAGGGCTTTGAAAGG  
GCTTGTCTATAA

FIG. 2

atgagaglgaaaggagaaatacagcactgtggagagggggggagagtggggcaccaictctgtggatgttgatgat  
ctglaglgcicagaaaaatgtgggtcagagictatgtgggtaccgtgtggagagagcaaacaccacictatgtt  
gtgcatcagatgtaaagcatataglacagaggtactaatgtttgggcacacatgctgtgtaccacagaccccaac  
ccaaagagtagtggttaaalgtgacagaaattttacagaaaaatgtacatgggttagaacagatgcatlgagga  
tataatcagttaaggatcaaaagccataaagccgtgtgaaataatccccacictgtgttagttaaaglgcacgtatt  
tgaaagatgtactactaaatcgaatagtagcgggaagaatgataatggagaaagagataaaaaactgtctctcaat  
atcagcacagcataagaggtlaaggtgcagaaagaatgtcattttttataaaactgtataataccaatagataatga  
tactaccagctataagtacagaggtgttaacactcagctacacagggccgtccaaaggcttctctgttagaccaatc  
ccatactattgtgcccggctgtttgcgattccaaagttaataataagacgttcaatgtgaaacaggaacalgtaca  
aatgtcagcacagtaaatgtacacatggaaataggccagtagtactcaactcactcactgtgttaattgtgcctagcaga  
agaagagtagtaattagatctgtcaattccaggaalgtcaataacataataglacactgtgaacacactgttagaaa  
ttaattglaacaagacaacaacatacagaaanaaaactcgtataccagagagacagcggttagctgtgttacaata  
ggaaaaataggaaatagacacagcatgttaacattagtagacaaaattggaataacactttaaaaaagatagctag  
caaatagagaaacatttggaaataataaaaaatactttaagcaatcctcagggaggggacccagaaattgataacgc  
acagtttaattgtggagggaatttttactgtlaattcaacacacactgttaattagctgttttaattagctctgg  
agtagtgaaggggtcaaataaacatlgaaaggaagtagacaatacactcctccatgcagaaataaaaaaaattataaacaatg  
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taacagagatgtgtgtaatagcacaatgltccgagatctcagacccggagagagagataatgggaacaattgtgaga  
agtgaaataataataaagtagtaaaaaatgaacattaggatggagtagcacaccaagggacaaagaagagaggtgtgca  
gagaaaaaagagcagltgggaataggaactgttctctgtgttctgggagcagcaggaagcactatgggcgcagcct  
caatgacgtgcacggtacagcccgacacataatgtctgtatagtgacagcagaacaaattgtatggggctatttag  
ggcacaacagcactgtgtcaacacagctcggggccacaaagcagctccagcaggaatccgtgtgtgtggaaagatacct  
aaaagatacaacatcgtggattgtgggtgtctcgtggaaaactatgttcacacactgtgtcgtgtggatgtcgtgt  
ttaaatacactctatgtgaagatcgcgaaacacagcagaagaaatgaacagaaatattgaataatgataaaatgggc  
aagttgtggaattgtttaacataaacaattgtgtgtgtataaaaaattactaaatgtagtaggaggtctgttag  
gtttaaagatgtttgtctgtacttctatagtgaaatagtagtgccagggatattcaacatactgtttcagacccac  
ctcccaaccggaggggaccgcagacggccgaaggaataagaagaagaaggltggagagagagacagacagatccatctg  
atagtgaaacggatctctgtgcactatctgtggacgactgtcgagcgtgtgcctctcagctaccaacgctgtgagagact  
tactctgtattgacagagatttggaaactctcgtggacgcagcgggggtgggaagccctcaaatattgtgtggaatctccta  
taggttgatgacaggaactaaagaatagtcgttagtctgtcattgcacagccatgcagtagctgagggggacagga  
cagggttataagaatagtaacaaggcgtgttagagctatctgcacacataccatgaagaataagacagggcgtgtggaagga  
ttttgtataaa

FIG. 3

1		MRVK...EKY	QHLWRGWGRW	GTMLLGMLMI	CSATEKLWVT	VYVGVPVWKE	50
	HXB2	WEAU1.6	----	....K-	IM--I--	--AEN--	
	AD3.V6	----	....R-	GTM--M--	--ADQ--	----	
	AD3.V22	----	....R-	GTI--M--	--ADQ--	----	
51		ATTTLFCASD	AKAYDTEVHN	VWATHACVPT	DPNPQEVVLV	NVTENFNMMWK	100
	HXB2	WEAU1.6	----	--D--	V--V--	--N--V--LE--	
	AD3.V6	----	....S-	I--I--	--S--I--ME--	--E--E--	
	AD3.V22	----	....S-	I--I--	--S--I--ME--	--E--E--	
101		NDMVEQMHEd	IISLWDQSLK	PCVKLTPLCV	SLKCT.....	.....VNV	150
	HXB2	WEAU1.6	----	....Q-	--T--N--N--	.....VNV	
	AD3.V6	----	....E-	----	--T--N--TELNL	LNCID.....	
	AD3.V22	----	....E-	----	--T--N--TELNL	LNCIDNSTSG	
151		DLKNDTNTN	SSSGRMIM..	EKGEIKNCsf	NISTSIRGKV	QKEYAFFYKL	200
	HXB2	WEAU1.6	SSSGEKM..	EE-EM----	--VTTL--N-R	KT--L--KL	
	AD3.V6	----	--TNDKCIppD	QK-EM----	--ITAG--N-V	RK--L--TS	
	AD3.V22	----	--TDDKCIppD	QK-KM----	--ITAG--D-V	RK--L--TS	

Fig. 4A

[illegible]

Fig. 4B

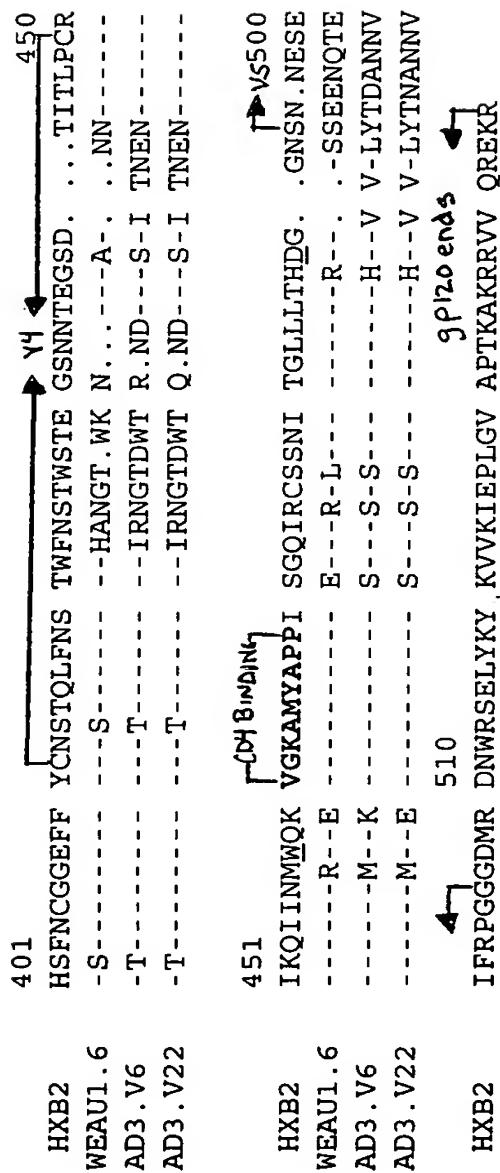


Fig. 4C

algaagaglgaaagggalcaagaagaaltatcagcactlggagatggggccacatgctcttgggaataaataatgatctg  
tagtctgcagggccaattgggtccacgtctattatgggttacctgtgtgaaagaagcaaccacactctatttgg  
calcagatgctaaagcataigatacagaggltacataatgittgggccacacatgccctgtgtaaccaagagccccaacca  
caagaaglatltaggaaatlgacagaaattttaaataatggaaataaatacaltggtagaaacagatgcagtaggat  
aattagtttgggaataaagccctaaacaggtglaaaaattaacccactctgtgtaataatgacatgtttga  
ggaaatgtaataacatacctatgtagtagccgggaaatgtaggagagagagaaataaaaaactgctttcaataacc  
acaagcatagagataaaatgcagaaagaatlgacatcttttttaaactgtatgtaglaacaaatagatglaacataatc  
taataccagctataggcttgaatgtgtaaccctcagatcattacacagcctgtccaaagggtactcttggagccaatc  
ccatactatttggcccggctgtgtttgcgattcaaaatgtaataaagaacttcaatgggagcggaacatglaca  
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agaagagatglaattatgcttgaataataccgaaacatgtctaaacataataaglacagctgaagaaacctglagaa  
taatttgaagaaccaacaacatacaagaataaaglatacataataggaccggagagctgaagaaacctglagaa  
ataataggagataagaacacacatglacatgtagacaaaaggaaatggaatgacatthaagacagatgctaaaca  
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aacatcagaagaataatgacaaacatcatctccatgcagataaatacaaatataaacatgtggcaggaatgggaa  
agcaatgtagccctctctacagaggacaataaagtgacataacatacagggctgtattatacaagagatggig  
glaataacaatactgggaaccaagagacctcagacctggaggagagataagaaggacaattggagaagtgtattat  
aaataaagtaglaaaaattgaaccataggaaatgacaccaatggcaagagagaagatgggtgcagagcaaaaaag  
agcagtgggaaataggagctgttcttgggttctggagcagcaggaagcactatgggcgcagctgtgacgtga  
cggtlacaagccaactatattgtctgtatgtgtcaacagcaaaaacatctctgtaggggctatttgggcgcaacagcal  
cttgtcaacatcagctggggccatcaagcctccagcagagcttccgttgggaaagatacctaaagggaataaca  
gctcctgggaatttgggtgtcttggaaaactatctatggccaccaactgtcttggaaatactatagttggglaataat  
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agggaaacccgacagaccgaaggaatcgaaagaaggttggagagagagacagacagatcggtcgtattatgttgatgg  
ctcttgaacatactctgttgcactcagagcctgttgccttcttactgctacacacagatgagaactactatgtt  
taacgagatttggaaactctgggaacgacgggggttgggaagccctcaaatctcgttgggggaatctccatagattggagt  
cagggaactaaagaatgtgtttagcttcaatgcacagcagtagcagtagctgaggggacagatagggttaga  
agtttcaaaagagctgtgagacttctccacalacctgtgaataaagaacagggcttggaaagggcttgttataa

FIG. 5

1

80

MRVK...EKY QHLWRWG...	.WRGTMLLG	MLMICSATEK	LWVTVYGV	VWKEATTLF	CASDAKAYDT	EVHNVWATHA
-----IERN-----ERNQHS	LWR-I----	-----KG..E	-----	-----	-----S-EP	-A-I-----
-----IQRCN-----	.....II--	MI-----A-	-----	-----D-E-	-----	-----
-----I-KN-----S	.....TML-	-----Q	-----	-----N-	-----	-A-----
-----IMKN-F-----	.....	L-----ADQ	-----	-----T-	-----K	-----M-
-----I-NNW-----	.....TML-	-----Q	-----	-----R-	-----S-	-A-----
-----EIMKN-W-G-----	.....I-	L-----A-Q	-----	-----	-----	-K-----
-----TQKS-PL-----	.....IFW	IMV-N--N	-----	-----RD-E-	-----	-----
-----GIRRN-----	.....	-----ADQ	-----	-----	-----S-	-I-----
AD3.V6						

81

[illegible]

161

[illegible]

Figure 6A



241

[illegible]

321

[illegible]

401

	401	V4		CD4		480
THSFNCGGEF	FYCNSTQLFN	STWF..NSTW	STEGSNNTG	.SDTITLPCR	IKQIINMWQK	VGKAMYAPPI
-----	-----	-----	-----	-----	-----	-----
92UG046-T8	-----DTSR--	R-YSTSG--	.....GV	NNS--K--	-----G	SGQIRCSSNI
92UG086-T8	-----ST-G--	-----ASNA-	....QGS-ST-	SN--Q--	-----R	E-L-K----
92US077-T8	-----T-K--	-----T-K--	....GNST	RNNTGSSN.	-----Q--	P-V---D----
93US143-T8	-----K--	-----K--	....STTEGL	NNT-....	-----G	R-----
06USHIPS4-T8M	-----A--	-----A--	....-G	NNSTWNE-D.	-----E	ADL-----
06USHIPS9-T8K-T	-----D-K-T	-----D-K-T	....NYT-G-	NSTNWND-EM	-----V---T	R-E-S----
06USSN20-T8	-----TS-	-----TS-	....IINGTN.	...HTGPYDT	-----V---E	L-T-----
AD3.V6	-----T--	-----T--	....IRNGTD-	TRNDTEGSDI	....-VKT-R	P-V---D----
						-----S----

Figure 6B

481 → V5 ← gpl20 ends ← 535

HXB2	TGLLLTRDGG	NSNN..ESEI	.FRPGGDMR	DNWRSELYKY	KVKKIEPLGV	APTKAKRRVV	QREKRAVG.I	GALFLGLFLGA
92UG046-T8	-----	...-NTRQNE	A-----	---	---R---	---E---	E---I-.L	-M-----
93UG086-T8	-I-----	D...NNSTNE	T-----	---	---	-R---	E---IAG-	-V-----
92US077-T8	-----	-T-DTNNT-	.-----	-T-DTNNT-	---	---	---	-M-----
93US143-T8	-----	VDE-SNTT-T	.---N-	---	-A---	---	---	-V-----
96USHIPS4-T8	-----	-I-ETNGT-	.---A-	---	---	---	---	-V-----
96USHIPS9-T8	-----	.S-TNTT-V	-----	---	---	---	---	-M-----
96USSN20-T8	-I-----	K...INSTNE	T-----	---	---	-H---	E-----	-V-----
AD3.V6	-----	-H-V VGLYTDANNV	T-----	---	-I-V-I-I-	---	---	-M-----
HXB2	AGSTMGAASM	TLTVQARQLL	SGIVQQNNL	LRAIEAQHL	LQTLVWGIKQ	LQARILAVR	YLKDQQLGI	WGCSGKLICT
92UG046-T8	-----	-----	-----	-----	-----	-----	-----	-----RH-----
93UG086-T8	-----	-L-----	-----S-	---	-K---	---	---	---
92US077-T8	-----	-----T-	-----	---	-H---	---	---	---
93US143-T8	-----	-I-----	-----	---	---	---	---	---
96USHIPS4-T8	-----	-V-----	-----	---	-H---	---	---	---
96USHIPS9-T8	-----	-L-----	-----	---	---	---	---	---
96USSN20-T8	-----	-AI-----	-----S-	---	-K---	---	---	---
AD3.V6	-----	-A-----	-----	---	---	---	---	---
HXB2	TAVPWNASWS	NKSLEQIW..	NHTTWMEWDR	EINNYTSLIH	SLIEESQNOQ	EKNEQELLEL	DKWASLWNWF	NITNWLWYIK
92UG046-T8	-----S-	-----NE--	-----	-D-E-Y	---	---	-Q---	S-K-----
93UG086-T8	-T-----S-	-----YSE--	-----	-S-QI-Y	D---	---	-D-A-	N-----
92US077-T8	-----	-----DK--	-----	-D-----	T---	---	-L---	N-----
93US143-T8	-----	-----DR--	-----	-D-G-Y	N---	---	-A---	---
96USHIPS4-T8	-----T-	-----KY--	-----	-S-G-Y	T---	---	-K---	---
96USHIPS9-T8	-----T-	-----DD--	-----	-D-NV-Y	N---	---	-D-A-	---
96USSN20-T8	-N-----S-	-----TFND--	-----	-NT-Y	R---	---	-D-A-	S-----
AD3.V6	-----S-	-R-GD-EN	DNM-----	-D-Y-Y	T---	---	-L---	-D-S-----

Figure 6C

HXB2	LFIMIVGGLV	GLRIVFAVL	IVNRVQGY	PLSFQTHLPT	PRGPRDEGI	EEEGGERDRD	RSIRLVNGSL	ALIWDRLSL
92UG046-T8	I-----I	-----I	V-----V	-----L-A	-----L-A	-----QG-G	-----T-FS	-----N-
93UG086-T8	I-----I	-----I	VI-----VI	-----LA-N	-----G-L	-----Q-S	-----S-F	-----A-E
92US077-T8	I-----I	-----VI	-----VI	-----R-A	Q-----Q	-----G-G	T-GP--D-F	I--V----
93US143-T8	I-----I	-----T	-----T	-----H-A	Q-E-----Q	-----G	-----GP--D-F	I--V----
96USHIPS4-T8	I-----I	-----T	-----T	-----R	Q-----Q	-----	-----RTS-D-F	-----V----
96USHIPS9-T8	I-----I	-----I-T	-----I-T	-----RF-A	-----RF-A	-----G-K	-----GL--	-----FF--V----
96USSN20-T8	I--V-----I	A-----A	I-----I	-----LTHH	Q-E-----Q	-----G-Q	-----V--	-----F--A----
AD3.V6	I-----I	-----S	-----S	-----RP-A	-----RP-A	-----	-----G--D-F	-----V----
HXB2	CLFSYHRLRD	LLIVTRIVE	LLG.....	RRGWEALKYV	WNLLQYMSQE	LKNSAVSLLN	ATAIAVAEGT	DRVIEVQGA
92UG046-T8	-----RH--	I-AAK--	F-----F	-----	-----	-----	-----	-----
93UG086-T8	-----FI--	AA-T--	-----HSSLKGL	L--G--L	G--L-G--	--I--I--FD	TI--VI-GW-	-----IG-RI
92US077-T8	F-----F	-----A	-----I	-----I	-----I	-----	-----	-----I--ARRT
93US143-T8	I-L-----I	-----	-----V	-----V	-----	IN--	-----	-----IL-R-
96USHIPS4-T8	-----LA--	-----	-----T-R	-----T-R	-----	-----	SI--V--	-----RV
96USHIPS9-T8	-----AA--	-----	-----I	-----I	-----	-----	-----V--	-----IL--L-R-
96USSN20-T8	-----AA-T--	-----	-----HSSLKGL	L--G--L	-----S-G--	-----IN--D	T-----NW-	-----IG-RF
AD3.V6	-----AA--	-----	-----	-----V--C	-----	-----	TI-----	-----II-R-
HXB2	CRAIRHIPRR	I ROGLERILL						
92UG046-T8	G---LN---	-----A-A-Q						
93UG086-T8	F---L---	-----A--						
92US077-T8	F---L---T-	-----A--						
93US143-T8	-----	-----A--						
96USHIPS4-T8	-----	-----A--						
96USHIPS9-T8	Y---I---	-----A--						
96USSN20-T8	G---LN---	-----A-Q						
AD3.V6	-----L-----	-----F-A-						

Figure 6D

92UG046-T8 (SEQ ID NO: 9)

ATGAGAGTGAAAGGGGATAGAGAGGAAATTATCAGCAATTTGTGGGAGAGGAAATCAGGACTCGTTGTGGAGATGGGGCATCAT  
GCTCCTTGGGATGTTAAATGATATGTAAGGAGAAATTTGGGTACAGATTATTTATGGGTACCTGTGTGGAAAGAGCAA  
CCACTACTTATTTTGTGCATCAGATGCTAAATCATATGACCCAGAGGCACATAATATCTGGGCTACACATGCCTGTGTG  
CCAACAGACCCCAACCCACGAGAAATAAACTGGAAATGTACAGAAAACCTTTAAATGTTGGAAAAATGACATGGTGGGA  
GCAGATGCATGAGGATGTAATCAGTCTATGGGATCAAAAGCCTGAAACCATGTGTAAAATTAAACCCACTGTGTCTTTC  
TACATTGCACTGAAATATAAGGCCCTTAATGCCACTATTAAATGCCACTGATAGGGACATAGGAATGAAAAACTGCTCTTTC  
AATGTAACCCACAGAAAGTAAATAAAGAAAGAACCAAGCAATGCACTTTTATATAAACTTGTGTGTACAAATGGATGA  
TAATAGTACTAAACCAACTATAGATTAAATAAATTGTAATACCTCAGTCAATACAGGGCTGTCCAAAGGTAAACCTTTG  
AGCCAAATCCCATACATTTATGTGCTCCAGCTGGATTTGCGAATTTCTAAAGTGAATGATAAGAAATTTCAATGGGACGGGT  
CCATGCAAAAACGTCAGCACAGTGCAGTGTACACATGGGATAGGCCAGTAGTGTCAACCCAACTGTGTGTTGAATGGCAG  
TCTAGCAGAAAGAGATAATAATTAGATCTGAAAATCTCAGAAATCTCAGAAATCTCAGAAATCTCAGAAATCTCAGAAATCTCAG  
CTGTACCAATTAATTGCTCAAGGCCCTACGAAATAAAGACGACGACCTACCTATAGGACTAGGGCAAGCGTACTATACA  
ACAAAATTAAAGGATATATAAGACCAGCACATTTGTAATATTAGTGGAGCAGAAATGGAATAAACTTTACAAACAGGTAGC  
TAAAAAATTAGGAGACCTTTTCAACAGACAAATAATTTTCAACCCACTCGGAGGGGACCCAGAAAATTACAAAC  
ACAGCTTTAATTGTGGAGGGAAATTTTCTACTCGGATACATCAAGACTGTTTAAATAGGACTTATAATACATCAGGTAGT  
ACAGGGGTAATAACAGTACAACTCAAACTCCCATGCAGAAATAAACAATAATAAACAATGTTGGCAGGGAGTAGGAAAAGC  
AATGTATGCCCTCCCATTTGAAGGACTAATCAAAATGTTTCATCAAAACATTACAGGACTATTGTTGACAAGAGATGGGGAA  
ATAATACTAGGAGAAATGAAGCCTTCAGGCTGGAGGGGATATGAGAGACAAATTGGAGAAAGTGAATTATACAAATAT  
AAAGTAGTAAGAAATTGAACCACTAGGTCTAGCACCCACTGAGGCAAGAGAGAGAGTGTAGAAAAGAGAAAAAGAGCAAT  
AGGACTAGGAGCTATGTTCCCTTGGGTCTTGGGAGCAGCAGGAAAGCAGATGGGCGCAGCGTCAATGACGCTGACGGTAC  
AGGCCAGACAGTTAATGTCGTGTAATGTCACAGCAAAACAATTTGCTAGGGCTATAGAGCGCAACAGCATCTGTG  
CAACTCAGTCTGGGCAATTAACAGCTCCAGGCAAGAACTCCTGGCTGTGGAAGCTACCTAAAGGATCAACAGCTCCT  
AGGAATTTGGGTTGCTGTGGAAGACACATTTGCACCCTGCTGTGCCCTGGAACTCTAGCTGGAGTAAATACTCTAA  
ACGAGATTTGGGTAACATGACCTGGATGGAGTGGGAAAAAGAAATTGACAATTACACAGAAATTAATACAGCTTAATT  
GAAGATCGCAACCCAGCAAGAAAGAAATGAACAAAGAACTATTGAAATTAGACCAATGGCAAGTTTGTGGAAATGGT  
TAGCATAACAAATAGGCTGTGTTATATAAATAATTCATAATGATAGTAGGAGGCTGTGATAGTTTAAAGATAGTTTGG  
CTGTGCTTCTGTAGTAAATAGAGTTAGGAGGATATTCACTCTGTCTATTCAGACCCCTCTCCAGCCCGAGGGGA  
CCCGACAGCCAGAGGAAATAGAAAGAAAGGTTGGAGAGCAGGCGAGAGGAGATCCATTCGATTGGTACCCGATTCTC  
AGCACTTATCTGGACGATCTAAGGAACCTGTGCCTCTTCAGCTACCGCCACTTGAGAGACTTAATCTTAATTGCAGCGA  
AGATTGTGGAGTTCTGGGACGAGGGGTGAGAAAGCCATCAAGTACCTGTGGAACTCTCTGCAATATTGGATTTCAGGAA  
CTAAAGAAATAGTGCTATTAGCTTATTGATACCAAGCAATAGCAGTAGCTGAGGGACAGATAGGTCATAGAGATATT  
ACAAAGATTATAGAGCTATTCTTCACATACCCAGACGAAATAAGACAGGGCTTGGAAAGGGCTTTACTATAA

Fig. 7

93UG086-T8 (SEQ ID NO: 11)

ATGAGAGTGAAGGGGATACAGAGGAACTGTCAAAAATTGTGGAGATGGGGAACTATAATCTTGGGTATGATGATAATTTG  
TAGTGCTGCAGAAAAAATTGTGGGTACTGTTTACTATGCGGTACCTGTGTGGAAGATGCGAAGAACCACTTATTTTGTG  
CATCAGATCGGAAAGCATATGATACAGAAGTGCATAAATGTCTGGGCCACACATGCGCTGTGTACCTACAGACCCCAACCCA  
CAAGAAATAAATTTGGAAAAATGTGACAGAAAAATTTAAACATGTGGAAAAATAACATGTTAGAGCAGATGCATACAGATAT  
AATCAGTCTATGGGACCAAGCCATAAGCCATGTGTACAGTTAACCCCTCTCTGTGTACTTTAGATTGTACTGTATGCCA  
CAATGCCACTAATACCACTATCATTTAGTGACATGAAGGAGAAATAAAAAACTGCTCTTTCAATATGACACACAGAATTA  
AAGGATAAGACACAGAAAGTACGTTCTATTTCTATAAGATGGATATAGTACAAAATTAACAACAACAACAGCAACAGCAA  
CAGTAGTCAGTATAGATTAAATAGTTGTAAATACCTCAACCAATTACACAAGCTTGTCCAAAAGGTATCCTTTGAGCCAAATTC  
CCATACATTAATTGTCTCCAGCTGTTTTCGATTTCTAAATGCAAGGATAAGGAGTTCAATGGAAACAGGGCCATGCGAG  
AATGTCAGCACAGTACAATGCACACATGGAAATCAAGCCAGTAGTATCAACTCAACTACTGTGTTAAATGGCAGTCTAGCAGA  
AGAAAGGTAATGATCTGAAAAATATCACAGACAATACTAAAAACATAATAGTGCAACTTACTGAGCCTGTAAAAA  
TTAATTGTACCAGACCTAACAAATAACAAGAGAGGTATAGTATAGGCCAGGACGAGCAATTCATTGCAAGAGATAGA  
ATAATAGGGATATAAGACAAGCACATTGTAAATCATAGTAGAGCAGCATGGAAATAACATTTGCGAGAAGGTAGCCCAACA  
ATTAAGAACACACTTTGAGAACAGAACAAATACTTTAATCACTCCGAGGAGGCCCAAGAAATAACTACACATAGTT  
TTAATTGTGGAGGAGAAATTTTCTATTGTAGCAACAACAGGCTGTAAATAGTACTTTGGAAATAGCAATGCCAGCAGCAG  
GGTCAAAATAGCACGGGTTCAAACGACACTAATCTCTCCAAATGCGAATAAGGCAATTAAAGGATGTGGCAGAGAGT  
AGGACAAACAATGTATGCCCTCCCATCCAGGGGTAAATAGATGTGACTCAAACTTACAGGACTAATATTAAACAAGAG  
ATGGGGGGGATAATAACAGCACAAATGAGACCTTCAGACCTGGAGGAGGAGATATGAGGGACAAATTGGAGAAAGTGAATTA  
TATAAGTATAAAGTAGTAAAGATTGAACCACTAGGAGTAGCACCCACAGGGCAAGAGAGTGGTGGAAAGAGAAAA  
AAGAGCAATAGCAGGAATAGGAGCTGTGTCTTGGGTTCTTGGGAGCAGCAGGAAGCACAAATTTGCTGAGGGCTATAGAGGCTCAA  
CGCTGACGGTACAGACCAAGACAGCTATTGTCTGGCATAGTGCACACAGCAAGCAATTTGCTGAGGGCTATAGAGGCTCAA  
CAGCATCTGTGAAACTACGGTCTGGGGCATTAAACAGCTCCAGGCACGAGTCTGCTGTGGAGAGATACCTAAAGGA  
TCAACAGCTCCTAGGAATTTGGGGTTGCTCTGGAAAACTCAATTGCAACCACTACTGTGCCCTGGAACTCTAGTTGGAGTA  
ATAATCCTATAGTGAGATATGGGACAACATGACCTGGCTGCAATGGGATAAGAAATTAGCAATTATACACAAATAATA  
TATGATCTAATTGAAGAATCACAGAAACAGCAGGAAAAAGAAATGAACAAGACCTATTGGCATTTGGACAAGTGGGCAAACTCT  
ATGGAATTGGTTTGACATATCAAAATGGCTGTGGTATATAAGAAATATTATTAATATGATAGGAGGCTTAATAGGATTAA  
GAATAGTTTGTCTGTAATTCAGTAAATAAGATTAGCAGGGGATACCTCACTTGTCTGTTCCAGACCCCTTGGCCCCG  
AACCAGGGGTCTCGACAGCCCGGAAGAAATCGAAGAAAGAGGTGGAGAGCAAGACAGAGCAGATCGATTGCGCTTAGT  
CAGCGGTTCTTAGCACTTGGCTGGAGGACCTGGGAGCCCTGTGCCCTCTTCAGCTACCAACCGCTTGAGAGACTTCACTCT  
TGAATGCCCGCAGGACTGTGGAACTTCTGGGACACAGCAGTCTCAAGGGTTGAGACTGGGTGGGAAAGGACTCAAGTAT  
CTGGGGAATCTCCTGTGTATTGGGGTCAGGAACCTAAAAATTAGTGCTATTAGTTTGTGTATACCATAGCAATAGTAAT  
AGCTGGCTGGACAGATAGGCTCATAGAAATAGGACAAAGAAATGGTAGAGCTATTCTCAACATACCTAGAGAAATCAGGC  
AGGGCGCGAAAGGGCTTTACAATAA

Fig. 8

92US077-T8 (SEQ ID NO: 13)

ATGAGAGTGAAAGGGGATCAGGAAGAAATTATCAGCACCTTGTGGAGATGGAGTACCATGCTGCTCCTTGGGATGTTAATGAT  
TTGTAGTGTACAGAAACAATTGTGGGTACAGTCTATTATGGGGTACCTGTGTGGAAAGAGAGCAACACCACTCTATTTT  
GTGCATCAGATGTAAAGCATATGATACAGAGGCACATAATGTTGGGCCACATATGCTGTGTATCCACAGACCCCAAC  
CCACAAGAAATAGTATTGGCAAAATGTGACAGAAAGATTTTAAACATGTGGAAATAAACATGTGTAAGACAGATGCATGAGGA  
TATAATCAGTTTATGGGATCAAAAGCCTAAAGCCATGTGTAAATAAACCCCACTCTGTGTACTTTAAATTGCACTGATG  
TAAGGAATGCTACTATTGTAGGAAATAGTACTATTAGGGTCGAGGAAGGATGAAGGAAGAAATAAAAAAACTGCTCTTTTC  
AATGTCACCACAAGCATGAGAGACAAGTTGCAGAAAGAGATGCAATTTTATAAATCTGATGTAATACCAATAGGTAA  
TGATAATAATACTAATACCAGCAATAATAATACCTATACCAGCTATAGGTGAGAAATTGTAATACCTCAGTCATTA  
CACAGGCTGTCCAAAGATAAACTTTGAGCCCAATCCCATACATATTGTGCCCCGGTGGTTGCGATTCTGAAGTGT  
AATAATAGGACGTTTCGAGGGAAGAGCCATGTAAAAATGTACGACAGTACAAATGTACACATGGAATTAGGCCAGTAGT  
ATCAACTCACTGCTTAAATGGCAGTCTAGCAGAAAAAGATATAGTAATTAGATCTGCCAATTTCTCAGACAAATGCTA  
AAGCCATAATAGTACAGCTGAACGAACTGTACAAATCAATTGTACAAGCCCAACAATAACAAGAAAGAAATAACT  
ATGGACCCAGGAAGAGTATATATACAAACAGGAGACATAATAGGAGACATAAGACGAGCACATTGTAAACATTAGTAAGGA  
AGATTGGAATAACACTCTAAACAGATAGCTAAAAATTAAGAGAACAAATTTGGGGATAATAAAACAATAGCCCTTTAAGC  
CATCCTCAGGAGGGACCCAGAAATTGTATATGCACAGTTTAAATTGTGGAGGGGAATTTTCTACTGTAAATACAAACAAA  
CTGTTTAAATAGTACTTGGATGGTAATAGTACTCGGAATAATACTGAAGGTCAAGTAACAATGGAAATATCACACTTCA  
ATGCAGAAATAAACAAATTATAACATGTGGCAGGAGTAGGAAAGCAATGTATGCCCTCCCATCAGAGGACAAATTA  
GATGTTTCATCAAAACATTACAGGGCTGCTATTAACAAGAGATGTTGGTAATACCAACGATACATAACAATACGTAGATCTTC  
AGACCTGGAGGAGGATATGAGGGACAAATTGGAGAAATGAATTTATATAAATAAAGTAGTAAAAATTGAACCATTAGG  
AATAGCAACCAAGCAAGGAAAGAGAGAGTGGTGCAAGAGAAAAAGCAATGGGAATAGGAGCTCTGTTCTTGGGT  
TCTTGGGAGCAGCAAGCACTATGGGCGCAGCTCAATGACGCTGACGGTACAGGCCAGACAACATAATGCTGTGTATA  
GTCAACAGCAGAAACAATTGCTGAGGGCTATTGAGGCGCAACACCATCTGTTCACACTCACAGTCTGGGGCATCAAGCA  
GCTCCAGGCAAGAGTCTGCTGTGGAAGATACCTAAAGGATCAACAGCTCCTGGGATTTGGGGTTGCTCTGGAAC  
TCATTTGCCACCTGCTGCTTGGAAATGCTAGTTGGAGTAATAATCTCTGGATAAGATTGGAAATAACATGACCTGG  
ATGCAGTGGAAAGAGAAATTGACAAATTACAAAGTCTAATAACACTTAAATTGAAGAAATCGCAGAACCAACAAGAAAA  
GAATGAACCTAGAGTTACTAGAAATTAGATAAAATGGGCAAAATTGTGGAAATTGGTTTGACATAACAAATGGCTGTGGTATA  
TAAAAATATTCATAATGATAGTAGGAGCTTGAAGTTAAGAAATAGTTTTTGTATACTTTCTATAGTGAATAGAGTT  
AGGCAGGATACCTCAACATTATCGTTTCAGACCCGCTCCAGCCAGAGGGGACCCGACAGCCCGAAGGAATCGAAGA  
AGAAGGTGAGGAGGAGAGACACATCCGGGCAATTAGTGGATGGATTCTTAGCAATTAATCTGGGTCCGACCTGCCGA  
GCCTGTTCTCTTCAGCTACCAACGCTTGAGAGACTTACTCTTGAATTGTAGCGAGGATTGTGGAACTTCTGGACGCGG  
GGGTGGGAATCCTCAAGTATTGGTGGAAATCTCTACAGTATTGGATTTCAGGAACATAAGAAATAGTGTGTTAGCTTGCT  
CAACGCCACAGCCATAGCAGTAGCTGAGGGGACAGATAGGATTATAGAAGTAGCAAGAGGACTTTTAGAGCTATTCTCC  
ACATACCTAGAAAGATAAGACAGGGCTTGGAAAGGGCTTTGCTATAA

Fig. 9

93US143-T8 (SEQ ID NO: 15)

atgagagtgaagggaatgaagaaGAAATTAATCAGCACTTTTGGAGATGGGGCACCAATGCTCCTGGGGTTATTGATGATCTG  
TAGTGCTGCAGATCAAAATTTGTGGGTCAACAGTCTATTATGGAGTACCTGTGTGGAAAGGAAACAACCACTCTATTTTGTG  
CATCAGATGCTAAAGCATATGATAAAGAGGTACATAAATGTTTGGGCCACACATGCTGTGTACCCACAGACCCCAACCCCA  
CAAGAAATACCAATTTGGTAAATGTAAACAGAGAAATTTTAAACATGTGGAGAAATTAACATGGTAGATCAAAATGCATGAGGATAT  
AATCAGTTTATGGGATCAAAAGCCTAAAGCCATGTGTAATAATTAACCCCACTCTGTGTACTTTAAATTTGCACTGATGATT  
TGAGGAATGCTACTAATACCACTACTAAATACCAATAGTAATGGGAGAAACCAATGGAGAAAGGAGAAATAAAAACTGC  
TCTTTCAAAATCACCTCAAGCATAAGAGATAAGGTACAGAAACAATATGCACCTTTTATAGCCTTGATGTAGTACCAAT  
AAAGAAATAACAATAATTAGCAATAAGATTAGATATAGTTAAGAAATTTGTAACACCTCAGTCAATACACAGGCTGTC  
CAAAGGTAACTTTGAGCCAAATCCCATACATTTATTTGCCCCGCTGTTTGGGATTTCTAAATGTAAATGATAAGAAAG  
TTCAATGGAAACAGGACCATGTACAAATGTCAGCACAGTACAAATGTAATGTAATGCAAGACAAATGCTAAAACCAATAATAG  
ACTGTTAAATGGCAGTCTAGCAGAAAGAGGTAGTAATTAGATCTGAAATTTTACAGACAAATGCTAAAACCAATAATAG  
TACAACTGAAAGACCCCTGTAGAAATCAATTTGTACAAGCCCAACAGAAATGCATGGAAAGGCATACCTATTGGAGTACCA  
GGGAGAAATTTCTATGCAAGAGAAACAATAACAGGAGATATAAGCAAGCATATTGTAACTTGTATAGCAAAAGTGGAA  
TAACACTTTAAACAAGATAGTTGAAAAATTAAGATTACATTTTAAATAAACAATAAGTCTTTAAATAGTCTCCTCAGGGG  
GGGACCCAGAAATTAATCTGCACAGTTTAAATTTGTGGAGGGGAAATTTTCTATTGTAAATTCACAAACAACCTGTTTAAATAGT  
ACTTGGAAATAGTACTACTGAAGGGTTAAATAACACTGGAGAGACCCAAATGCTACTCCCATGCAGAAATAAAGCAAAATAT  
AAACATGTGGCAGGAAGTAGGAAAGCAATGTATGCCCTCCCAATGCAGACCTAAATAGATGCTCATCAAAATATTACAG  
GGCTGCTATTAAACAAGAGATGGTGGTTGTATGAGAAACAGCAACCCAGACCTTCAGGCTGGAGGAGGAAATATG  
AGGGACAAATGGAGAAAGTGAATTAATAAATAAAGCAGTAAATAATTAAGCCCTTAGGGGTAGCACCCACCAAGGCAAA  
GAGAAAGATGGTGCAGAGAGAAAGAGCAGTGGGAATAGGAGCTGTCTTGGGTCTTGGGAGCAGCAGGAAAGCA  
CTATGGGCGCAGCATCAATAACGCTGACGGTACAGGCCAGACAAATATTGTCTGGTATAGTGCAACAGCAGAAACAATTG  
CTGAGGGCTATTGAGGGCGCAACAGCATCTGTGCAACTCAGCTCTGGGCAATCAAGCAGCTCCAGGCGAGAGTCCCTGGC  
TGTGGAAAGATACCTAAAGGATCAACAGCTCCTGGGATTTTGGGGTGTCTGGAAACTCATCTGCACCACTGCTGTGC  
CTTGGAAATGCTAGTTGGAGTAATAATCTCTGGATAGGATTTGGAATAATATGACCTGGATGGAGTGGGAAAGAGAAATTT  
GACAAATACACAGGCTTAATAACAATTAATTGAAGAAATCGCAAAACCAACAAGAAAGAAATGAACAAGAAATATTAGC  
ATTAGATAAATGGGCAAGTTTGTGGAATTTGGATTGACATAACAACCTGGCTGGTATATAAAAATATTCAATAATGATAG  
TAGGAGGCTTGATAGGTTTAAGAAATAGTTTCTGTAATTTCTATAGTGAATAGAGTTAGGCAAGGATCTCAACCAATTA  
TCGTTTCAGACCCACCAAGCTCAGAGGAAACCCGACAGGCCCGAAGGAATCGAAGGAGAAAGGTGGAGAGAGAGACAG  
AGACAGATCCGGTCCCTTAGTGGATGGATTCTTAGCAATTAATCTGGTGGACCTCGGAGCCTGTGCAATCTTCTCTACC  
ACCGCTTGAGAGACTTACTCTTGTATTGTAAACGAGGATTGTGGAACTTCTGGGACGCAAGGGGTGGAAAGTCTCTCAATAT  
TGGTGGAAATCTCTACAGTATTGGAGTCAGGAACTAAAGAAATAGTGCTATTAACTTGTCTCAACGCCACAGCCATAGCAGT  
AGCTGAGGGGACAGATAGGGTTATAGAAATATTACAAAGAGCTTTTAGAGCTATTCTCCACATACCTACAAAGAAATAAGAC  
AGGGCTTGAAAGGGCTTTGCTATAA

Fig. 10

96USSHIP4-T8 (SEQ ID NO: 17)

ATGAGAGTGAAGGGGATCAGGAACAAATTGGCAGCATTATGGAGATGGGGCCACCATGCTCCTTGGGATGTTGATGATCTG  
TAGTGCTACAGAAACAATTGTGGGTCA CAGTCTATTATGGGGTTCCTGTGTGGAGAGAAAGCAACAACTCTATTCTGTG  
CATCAGATTCTAAAGCATATGATACAGAGGCACATAATGTTTGGGCCACACATGCCCTGTGTACCCACAGACCCCAACCCA  
CAAGAAGTATTATTGGAAAAATGTGACAGAAAAATTTAAACATGTGGAAAAATGACATGGTAGAACAGATGCATGAGGATAT  
AATCAGTCTATGGGATCAAAAGCCTAAAGCCATGTGTAAAACTAACCCACGTTGTGTACTTTAAAGTGCACTGATTATG  
AGGGAATGCTAATAATACCATGATGCTAAATAAGTGGAAAGGAGAAATAAAATTCACCTTCAATGTC  
ACCACAGCCATAAGAGATAAGGTGAAGAAACAATATGCATTTTTCATAGTCTTGA TAGTGTCCCAATAAAGATGCTAA  
GGATAGTAACAGCTATAGGTTGATAAGTTGTAAACACCTCAGTCAATACACAGGCTGTCCAAAGACATCCTTTGAGCCAA  
TTCCCATATATTATTGTCCCCGGCTGGGTTTCCGATTCTAAATGTAAACAATAAGACATTCAGTGGAAAAAGGACAAATGT  
AAAAATGTCAGCACAGTACAAATGTACACATGGAAATTAGGCCAGTAGCATCAACTCAACTGCTGTAAATGGCAGTCTAGC  
AGAAGAAAGAGATAATAATTAGATCTGACAAATTCACAAACAATGCTAAATTCATAATAGTACAGCTGAAAGAACCTGTAG  
AAATTAATTGTACAAAGCCCGCAACAATACAGAAAGATATACATAGGACCCAGGAGAGCATGGTATGCCAACACAGGA  
GATATAATAGGAGATATAGACAAGCAATTGCAACCTTAGTAGTGTAAATGGAAATAACATTTAAAGACAGATAGCTAA  
AAATTAGGAGAACAAATTCAGGATAAAAATATAACCTTTAAGCAAATCCTCAGGAGGGGACCCAGAAATTTGTAATGCACA  
GTTTAAATTGTGGGGGAAATTTTCTACTGTAAATGCAACACAACCTGTTTAATAGTACCTGGGATAATGGTACTTTGGAAT  
AACAGTACTTTGGAATGAAACTGTATACTACCACTATCACACTCCCATGACAGGATAAAACAATTTGTAAACAATGTGGCAGAC  
AGTAGGAAGAGCAAATGTATGCCCTCCCATTAGAGGAGAGAAATTAGTTGTTCATCAATAATTACAGGGCTGCTATTAAACAA  
GAGATGGTGGTAAATATAAATGAGACAAATGGGACTGAGATCTTTAGACCTGACAGGAGGAGATATGAGGGACAAATTTGGAGA  
AGTGAAATATATAAATATAAAGTAGTAAAAATTTGAACCAATTAGGAATAGCACCCCAAGGCAAGAGAAAGAGTGGTGCA  
GAGAAAAAAGAGCAGTGGGAGTAGGAGCTATGTTCTTGGTGTATAGTGCAACAGCAGAAACAATTTGCTGAGGGCTATTGAG  
CAGTGACGCTGACGGTACAGGCCAGACAAATTAATTGCTGTGTATAGTGCAACAGCAGAAACAATTTGCTGAGGGCTATTGAG  
GCGCAACATCATCTGTGCAACTCAGCTGCGGGCATCAAGCAGCTCCAGGCAAGAGTCTGCTGTGGAAAGATACCT  
AGGGGATCAACAGCTCCTGGGATTTGGGGTGTCTGTGAAACTCATCTGCACCACTACTGTGCCTTGGAAATACAGTT  
GGAGTAAATAATCACTGAAATACATTTGGGATAACATGACCTGGATGCACTGGGATAAGAAATTAGCAATTACACAGGC  
TTAATATACACCTTAATTGAGGAATCGCAGAACCCAGCAAGAAAGAAATGAAAAGAACTACTGGAAATTGGAATAATGGGC  
AAGTTTGTGGAAATGGTTTGACATAACAACTGGCTGGTATATAAATAATTCAATAATAATAGTAGGAGGCTTGATAG  
GTTTAAGAAATAGTTTACTGTACTTTCTATAGTGAAATAGAGTTAGCAGGGGATCTCACTACTATCGTTTCAGACCCCGC  
CTCCCAACCCAGAGGGGACCCGACAGGCCCGAAAGGAATCGAAAGAAAGAGTGGAGAGAGAGACAGACAGATCAAGAAC  
ATCAGTGGATGGAATTTCTTAGCACTTAATCTGGGTGATCTACGGAGCCCTGTGCTCTTCAGCTACCCCGCTTGAGAGACT  
TACTCTGATTCTAGCGAGGATTGTGGAACTTCTGGACCGCGGGGTGGGAAACCCCTCAGATAATTGGTGGAAATCTCCTA  
CAGTATTGGAGTCAGGAACTAAAGAAATAGTGTGTTAGCTTGTAAATTTCTATAGCCATAGTAGTAGCTGAGGGAACAGA  
TAGGGTTATAGAAAGTAGTACAGAGAGTTTGTAGAGCTATCCGCCACATACCTAGAAAGAAATAGACAGGGCTTGGAAAGGG  
CTTTGCTATAA

Fig. 11



96USHIPS9-T8 (SEQ IS NO: 19)

atgagagTgaaggagatcatgaaaattatcagcACTGGTGGAGAGGGGGCCATCATGTCTCCTTGGGTGTAAATGATCTGTG  
TAGTGTCTGTGAACAAATTTGTGGGTCAACAGTCTATTATGGGGTACCCGTGTGGAAAGAAAGCAACCACTCTATTCTGTG  
CATCTGATGCTAAAGCATATGATACAGAGAAACATAATGTTTGGGCCACACATGCTGTGTACCTACAGACCCCAACCCA  
CAAGAAGTAGTATTGGAAAAATGTGACAGAAAAATTTAAACATGTGGAAAAATAACATGGTAGAACAGATGCATGAGGATAT  
AATCAGTTTATGGGATCAAAAGTCTAAAGCCATGTGTAAACTAACCCCACTCTGTGTCACTTTAAACCTGTAGGAAACGTTA  
CTATTACCAATACTACTACCAATAGTAGTGGCTGGAAACTAAATGGAGGAAGGAGAAATAAAAACTGTCTTTCAAAAATC  
ACCACAACTACTGAGACATAAGATGCAGGAAGAACATGCACCTTTTATAAATCAGATGTAGTACCCTAGGTAAATAATAG  
TGCAATAGGTAATAATAATGCCAGATATAGTTGTAACTGTAACTCAACCTCAACCATACACAGGCCTGTCCAAAGGTAT  
CCTTTGAGCCAAATCCCATACATTATTGTGCCCCGGTGTGTTCGATTCTCTAAATGTAGAGATAAGAAAGTTCAATGGA  
ACAGGACCATGTAAAGATGTGACGCACAGTACAATGTACACATGGAAATTAAGCCAGTAGTATCAACTCAACTACTGTIAAA  
TGGCAGTCTAGCAGAAGAAGATATAGTAAATTAGATCTGCCAATTTCTCAGACAAATGCTAAAAATCATAAATAGTACAGCTGA  
ATAAACTGTAGTAAATTTGTCAAGACCCCAACAAATAACAAAGAAAGGTATAAATATAGGACCAGGAAGAACAGTT  
TATGCAACAGGAAAAATAATAGGAGATATAAGACAAGCACATTGTAAACATTAGTAAAGGAGAAATGGTATAACACTTTAAA  
GCAGGTAGTTACAAAATTAGGAGAACATTTTAAAGAAATAAACAAATAGCCTTTAATAAATCCTCAGGAGGGGACCCAGAAA  
TTGTAAAGCACACTTTAAATTTGTGGAGGGGAATTTTCTACTGTGATTCAACAAATTTGTTTACTAGTACTTGGAACTAT  
ACTAATGGTACTTGGAAATAGTACTAACTGGAATGATCTGAAATGTTGAAATAAAACAATCACTCCCATGCGAGAAATAAA  
ACAAAATGTAAACATGTGGCAGGAAGTAGGGAAGCAATGTATGCCCTCCCATCAGCGGACTTATTACATGTTTCATCAA  
ATATTACAGGACTACTATTAAACAAGAGATGGTGTAGTAACACGAACACCAACCGAGGTCTTCAGACCTGGAGGAGGAAT  
ATGAAGGACAAATGGAGAAAGTGAAATTAATAAATAAAGTAGTAAAAATTTGAACCAATTAGGAGTAGCACCCACCAAGGC  
AAAAAGAAAGATGGTGCAGAGAGAAAAAGAGCAGTGGGAATAGGAGCTCTGTCTTGGGTCTTGGGAGCAGCAGGAA  
GCACTATGGCGCAGCGTCACTGACGCTACCGGTACAGACCAGACAAATTAATGCTGTGTATAGTGCAGCAGCAGAACAAAT  
CTGCTGAGGGCTATTGAGGGCAACAGCATCTGTGCACTCAACAGTCTGGGCAACAAGCAGCTCCAGGCAAGAGTCTCT  
GGCTGTGAAAGATACCTAAAGGATCAACAGCTCCTGGGATTTGGGTGTCTCTGGAATACTCATTTGCCACTACTG  
TGCCTTGGAAATGCTAGTTGGAGTAATAATCTCTGGATGATATTGGCAGAACATGACCTGGATGGAGTGGGAAAGAGAA  
ATTGACAAATTACACAAATGTAAATACAAATTTAATTGAAGAAATCGCAGAACCAAGCAAGAAAGAAATGAACAAAGACTTATT  
AGCATGGGATAAATGGGCAAGTTTGTGGGATTTGGTATGCAATCAAACTGGCTGTGTATATAAAAAATTTCATAATGA  
TAGTAGGAGGCTTGATAGGTTTAAAGATAATTTTACTGTACTTCTATAGTAAATAGATTAGGCAAGGATATCTACCA  
TTATCGTTTCAGACCCGCTTCCAGCCCCGAGGGACCCGACAGGCCGAAAGAAATCGAAGAAAGGAGGTGGAGAGAAAGA  
CAGAGACAGATCCGGCTATTAGTGAAACGGAATCTTTGCACTTATCTGGGTGGACCTACGGAGCCTGTGCCTCTTCAGCT  
ACCACCGCTTGAGAGACTTACTCTTGAATTGACGCGAGAAATTTGTGAGCTTCTGGGACCGCAGGGGTGGGAAATCCTCAAG  
TATTGGTGGAAATCTCTGCAAGTATTGGAGTCAGGAACATAAGAAATAGTGTGTGTAGCTTGTCTTAAATGTCAAGCCATAGC  
AGTAGCTGAGGGGACAGATAGGATTTCTAGAAATTTACAAAGAGCTTATAGAGCTATTATTACATACCTAGAGAAATAA  
GACAGGGCTTAGAAAGGGCTTTGCTATAA

Fig. 12

96USSN20 (SEQ ID NO: 21)

ATGAGAGTGAAAGGGGACACAGAGAGTTATCCACTCTTATGGAGGTGGGGTATAATATTTGGATAATGGTAATTTGTAA  
TGCTGAAAAATTTGTGGTCAACGGTCTATTATGGGTACCTGTGTGGAGAGCGCAGAGACCACCTTATTTGTGCAATCAG  
ATGCTAAAGCATATGATACAGAAATACATAATGTTGGGTACACATGCCTGTGTACCCACAGACCCTAACCCACAAGAA  
ATACCTTTGGAAAAATGTAACAGAAAAATTTTAAATATGTGGAAAAATAACATGTGTAGAGCAGATGCATGAAGATATAATTGA  
TCTATGGGACCAAGCCTAAAGCCATGTGTAAAGTTAACCCCTCTCTGTGTACTTTAAATTTGCCATAAATCAATAAAT  
TCAATAGCAGCAATAACAGCACCCCTATCAACAACACCATATAATAATGGCATGCAAGGGGAAATAAAAAATGCTCTTTC  
AATACAACCAAGAAATTAAGAGGTAAAGACAAAGAAACAGTATGCACCTTTTAAATAAATGATGATGATACAAATTAATGA  
TAAGAAATAATAGTCATAGTAAATAAGACGGTATATGTTAATACATTTGTAATACCTCAACCATACACAGGCTTGTCCAA  
AGGTAACCTTTGAGCCAAATCCCATACATTAATGTGCCCCAGCTGTTTGCATTTCTAAATGTAAGGATCAGGAGTTC  
AATGGATCAGGACCATGCAACAATGTCAGCACAGTACAAATGCACACATGGAATCAAGCCAGTAGTATCAACTCAGCTGCT  
GTTAAATGGCAGTCTAGCAGAAAGAAAAATAATGATTAGATCTGAAATATCACAACAATGCAAGACCAATAATAGTAC  
AGTTCACTGAGCCTGTAGAAATTAATTTGACAGACCTAACAAATACAAGAAAGGGTAGGTAGGACCAAGGGCGA  
GCAGTCTATGTAACAATGCCATAATAGGGGATATAAGCAAGCACATTTGTAATGTCAAGCAGAGCAAAATGGAAATGACAC  
TTTAAAGAAAGGTAGTTACAAATTAAGGAAGCACTTTAAACAACAATAGTCTTTACTAAACCTCAGGAGGGGATGTGG  
AAATTACAACACATAGTTTAACTGTGGAGGAGAAATTTTCTATTGCAATACATCAACAACCTGTTTAAATAGCACITTTGGTAT  
ATCAATGGCACAAACCCACACAGGGCCATATGACACTGACACTATAACTCTCCGATGCAGAAATAAAGCAAAATTTGTAAAAAC  
ATGGCAGAGAGTAGGACAAAGCAATGTAATGCTCTCCCATCCACAGGAGTAATAAGGTGTGACTCAACACATTACAGGAATAT  
TATTACAAGAGATGGAGGGAATAATAGTACAAATGAGACTTTTCAAGCCTGGAGGAGGAGATATGAGGGACAATTTGG  
AGAAGTGAAATATATAAGTATAAAGTAGTAAAAATTTGAACCACTAGGTGTAGCACCCACCCATGCAAAAAGAAAGAGTGGT  
GGAGAGAAAAAAGAGCAGTTGGAGTAATAGGAGCTGTCTCTTGGTCTTAGGAGCAGCAGGAAACACTATGGCG  
CAGCGCAATAACGCTGACGGTACAGGCCAGACAATTTTGTCTGGTATAGTGCAACAGCAGAGCAATCTGCTGAGGGCT  
ATAGAGGCTCAACAGCATCTGTGAACCTCAGCTGCGGCAATTAACAGCTCCAGGCAAGAGTCTGCTGCTGGAAG  
ATACCTAAGGGATCAACAGCTCCTAGGAATTTGGGGTCTCTGGAAGCTCATCTGCACCACTAAATGTACCCCTGGAAT  
CTAGTTGGAGTAATAAACTTTTAAATGACATATGGAATAACATGACCTGGTTACAATGGGATAAGAAATTAACAAATTAC  
ACAAACAAATATATCGTCTAATTTGAAGAAATCGCAGAAACCCAGCAGGAAAGAAATGAACAAGATTTATGGCATTTGGACAA  
GTGGGCAAGTCTGTGGAGTTGGTTGACCTATCAAAATTTGGCTATGGTATATAAGAAATTTTATAATGGTAGTAGGAGGTT  
TGATAGCTTTAAGATAAGTTTGTCTGTCTGTCTATAATAATAGATTAGGCAAGGATCTCACCTCTATCATTCAG  
ACCTTTACCAACCAAGAGGAAACCCGACAGCCCGAAGGAATCGAAGAGGAGGTGGGAGCAAGACAGACAGGTC  
CGTGAGATTAGTAACCGAATTTCTAGCTCTTGCCTGGGACGATCTACGGAGCCTGTGCCTCTTCAGCTACCAACCGATTGA  
GAGACTTACTCTTGAATTGACGCGAGGACTGTGGAACTTCTGGGACACAGCAGTCTCAAGGACTGAGACTGGGGTGGGA  
GCCCTCAAAATATCTGTGGAATCTTCTGTCTACTGCGGCCAGGAACTAAAGAAATAGTGCTATTAAATCTGCTTGATACAA  
AGCAATAGCAGTAGCTAATTGGACAGACAGAGTTATAGAAATAGGACAAAGATTTGGTAGAGCTATTCTCAATAATACCTA  
GAAGAAATCAGACAGGGCCTCGAAAGGGCTTTGCAATAA

Fig. 13